

Appl. No. 09/554,960  
Amdt. dated December 20, 2005  
Reply to Office Action of October 21, 2005

PATENT

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claim 1 (original): A composition comprising an isolated nucleic acid molecule which encodes a Pvs25 polypeptide and hybridizes under stringent conditions to SEQ ID NO:3.

Claim 2 (original): The composition of claim 1, wherein the isolated nucleic acid has a sequence as shown in SEQ ID NO:3.

Claim 3 (original): A composition comprising an isolated nucleic acid molecule which encodes a Pvs25 polypeptide having an amino acid sequence as shown in SEQ ID NO:4.

Claim 4 (original): A composition comprising an isolated Pvs25 polypeptide.

Claim 5 (original): The composition of claim 4, wherein the Pvs25 polypeptide has an amino acid sequence as shown in SEQ ID NO:4.

Claim 6 (original): A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a Pvs25 polypeptide in an amount sufficient to induce an immune response in a susceptible organism.

Claim 7 (original): The composition of claim 6, wherein the Pvs25 polypeptide comprises an amino acid encoded by the nucleic acid of claim 1 or the polypeptide of claim 4.

Claim 8 (original): The composition of claim 6, wherein the Pvs25 polypeptide comprises an amino acid sequence encoded by the nucleic acid of SEQ ID NO:3 or an amino acid having the sequence as set forth in SEQ ID NO:4.

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Claim 9 (original): A method of inducing an immune response against Pvs25 on the surface of *Plasmodium vivax* ookinetes, the method comprising administering to a susceptible organism a pharmaceutical composition comprising a Pvs25 polypeptide in an amount sufficient to induce an immune response.

Claim 10 (original): The method of claim 8, wherein the Pvs25 polypeptide in the pharmaceutical composition is recombinantly produced.

Claim 11 (original): The method of claim 8, wherein the susceptible organism is a human.

Claim 12 (original): The method of claim 8, wherein the Pvs25 polypeptide in the pharmaceutical composition is on the surface of a recombinant virus.

Claim 13 (original): A method of inducing an immune response against Pvs25 on the surface of *Plasmodium vivax* ookinetes, the method comprising administering to a susceptible organism a pharmaceutical composition comprising a nucleic acid encoding a Pvs25 polypeptide in an amount sufficient to induce a transmission blocking immune response.

Claim 14 (original): The method of claim 16, wherein the susceptible organism is a human.

Claim 15 (original): An immunogenic composition capable of eliciting an immunogenic response comprising an isolated Pvs28 polypeptide and an isolated molecule comprising an epitope.

Claim 16 (original): The immunogenic composition of claim 15, wherein the isolated molecule comprising the epitope is a polysaccharide.

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Claim 17 (original): The immunogenic composition of claim 15, wherein the isolated molecule comprising the epitope is a polypeptide.

Claim 18 (original): The immunogenic composition of claim 17, wherein the epitope is chemically linked to the Pvs28 polypeptide.

Claim 19 (original): The immunogenic composition of claim 18, wherein the immunogenic composition comprises a Pvs28 fusion protein, wherein Pvs28 polypeptide is chemically linked to the epitope by a peptide bond.

Claim 20 (original): The immunogenic composition of claim 19, wherein the fusion protein comprises a C terminal Pvs28 domain.

Claim 21 (original): The immunogenic composition of claim 19, wherein the fusion protein comprises an N terminal Pvs28 domain.

Claim 22 (original): The immunogenic composition of claim 19, wherein the fusion protein comprises a Pvs25 domain.

Claim 23 (original): The immunogenic composition of claim 22, wherein the Pvs25 domain comprises a carboxyl region of Pvs25.

Claim 24 (original): The immunogenic composition of claim 22, wherein the Pvs25 domain comprises an N terminal region of Pvs25.

Claim 25 (original): The immunogenic composition of claim 19, wherein the fusion protein further comprises a flexible chemical linker.

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Claim 26 (previously presented): The immunogenic composition of claim 25, wherein the flexible chemical linker comprises the sequence GGGPGGG (SEQ ID NO:15).

Claim 27 (original): The immunogenic composition of claim 19, wherein the fusion protein comprises a recombinant polypeptide.

Claim 28 (original): The immunogenic composition of claim 15, wherein the immunogenic composition further comprises an adjuvant.

Claim 29 (original): The immunogenic composition of claim 28, wherein the composition further comprises alum.

Claim 30 (original): A nucleic acid encoding the fusion protein of claim 19.

Claim 31 (original): The nucleic acid of claim 30, wherein the nucleic acid comprises yeast preferred codons which enhance translation of the nucleic acid in yeast.

Claim 32 (original): The nucleic acid of claim 31, wherein protein encoded by the nucleic acid is secreted from a culture of yeast at a level in excess of 5 mg/L.

Claim 33 (original): The nucleic acid of claim 30, further comprising a pharmaceutical excipient.

Claim 34 (original): The nucleic acid of claim 30, further comprising a promoter.

Claim 35 (original): The nucleic acid of claim 30, further comprising an expression cassette.

Claim 36 (original): The nucleic acid of claim 30, further comprising a vector.

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Claim 37 (original): The vector of claim 36, wherein the vector is expressed in yeast.

Claim 38 (original): A cell comprising the nucleic acid of claim 30.

Claim 39 (original): The cell of claim 38, wherein the cell is a yeast cell.

Claim 40 (original): A method of inducing a transmission blocking immune response in a mammal, comprising administering the composition of claim 15 to a mammal.

Claim 41 (original): The method of claim 40, wherein the composition is administered intramuscularly, intradermally, or subcutaneously.

Claim 42 (original): The method of claim 40, wherein the composition is administered to the mammal with an adjuvant.

Claim 43 (original): The method of claim 42, wherein the adjuvant is alum.

Claim 44 (original): A composition comprising an isolated nucleic acid molecule encoding a *Plasmodium vivax* Pvs28 polypeptide lacking at least one N-linked glycosylation site.

Claim 45 (original): The composition of claim 44, wherein the nucleic acid encodes a polypeptide comprising a sequence as set forth in SEQ ID NO:2, excepting that the amino acid residue corresponding to residue 130 of SEQ ID NO:2 is not an asparagine residue.

Claim 46 (original): The composition of claim 45, wherein the amino acid residue corresponding to residue 130 of SEQ ID NO:2 is glutamine.

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Claim 47 (original): A composition comprising an isolated *Plasmodium vivax* Pvs28 polypeptide lacking at least one N-linked glycosylation site.

Claim 48 (original): The composition of claim 47, wherein the polypeptide comprises a sequence as set forth in SEQ ID NO:2, excepting that the amino acid residue corresponding to residue 130 of SEQ ID NO:2 is not an asparagine residue.

Claim 49 (original): The composition of claim 48, wherein the amino acid residue corresponding to residue 130 of SEQ ID NO:2 is glutamine.

Claim 50 (original): A method of inducing a transmission blocking immune response in a mammal, comprising administering the composition of claim 44 or claim 47 to a mammal.